volcanic showers of mud at times took very eccentric courses, overleaping one section of land and then striking another further on, in the same line. Dr. Hector, who is making a scientific examination of the volcanic districts, said he expected that the volcanic cone which was thrown up in Lake Rotomahana during the disturbances had already on July 1 attained a height of six hundred feet, and was daily adding to its stature. He has named it Mount Hazard, after the gentleman of that name who lost his life on the first night of the great eruption. A chemical examination of the volcanic ashes shows that they are mostly composed of fine basaltic soil. Every human being has abandoned the entire portion of country situated within the limits of the volcanic system. Photographers were busily engaged taking views of the region."

GAS SUPPLY.

NUMBERS two and three of the publications of the American economic association are covered by a monograph, entitled "The relation of the modern municipality to the gas supply," prepared by Edmund J. James, Ph.D. The pamphlet contains a thoroughgoing investigation of the various systems of gas supply, and for that reason should commend itself to all interested in municipal administration and economic phenomena. The author, as is well known to readers of *Science*, is disposed to widen the sphere of state activity, basing his reasoning on philosophic conceptions. The present discussion, however, is not limited to a scholastic treatment, but assumes an intensely practical form. It is viewed from two standpoints: that of the individual, who is interested in obtaining a good quality of gas at a low price; and that of the municipality, which is interested in acquiring a revenue by legitimate economic methods. On both these points, Dr. James supplies abundant data. He shows how many European, and especially English, cities have been able to save large sums for the taxpayers by managing gas trusts on a business basis; while on the other hand, "the general opinion in England seems to be that the gas furnished by the public companies is better than that made by private companies." The experience of city upon city is adduced to support the belief that a transfer of ownership from private parties to municipal authorities would be of immense benefit. In the United States, there are at least three city corporations, Philadelphia, Richmond, and Wheeling, which undertake the manufacture and sale of gas. In each of these the results, upon the whole, have been favorable. The monograph is enriched by statistical information which makes it exceedingly serviceable; and the thoroughness of the work augurs well for the series of publications which the Economic association has undertaken.

LONDON LETTER.

SEVERAL weeks ago, attention was drawn in this correspondence to a remarkable outbreak of scarlatina in a London district, in which the hypothesis that the disease had spread from the milk drawn from one particular farm, seemed to be suggested and supported by the facts of the case. The proof, then wanting, that the disease of the animals could really produce scarlatina in man, has now been supplied by the investigations of Dr. Klein (conducted mainly at the 'Brown institution'), whose report has just been issued by the local government board. Four calves were inoculated with the matter from sores on the udders of the diseased cows, and similar sores were produced in them. Dr. Klein states that this disease, thus artificially produced in the calf, 'bears a close resemblance to human scarlatina,' and he specially quotes the appearances found in the kidney of the animal as indicative of the scarlatina attack. It is remarkable, however, that the milk of the affected cows is harmless, and does not contain, *per se*, the germs of the disease, but that it is contaminated after it has passed from the udder of the cow. Dr. Klein says that the fingers of the milker must of necessity bring down into the milk diseased particles from the ulcerations on the teats of the animal, and he points out that in the milk 'the disease germs find a good medium in which to multiply.'

As the last important act of his present official existence, Mr. Mundella, the president of the board of trade, has just announced that a 'Fishery department' is to be forthwith created, with an assistant secretary of state at its head. Mr. Berrington, who is to be the chief inspector, will be recognized as the right man in the right place, since he has already won his spurs as the successor in that post of Professor Huxley. The new department promises to be strong in practical knowledge.

The latest large engineering scheme which has been broached is that for a tunnel between Scotland and Ireland, at two points (Port Patrick and Donaghadee) where the distance from land to land does not exceed twenty miles. A shaft is to be sunk at once to test the strata. The cost of the tunnel has been estimated by competent authorities at $25,000,000, and that of the land approaches on either side, $5,000,000 more. The distance from Moville, in Lough Foyle (where the Allan line steamers now call), to London will be

four hundred and fifty miles, or eleven hours' rail. No American lines would land mails and passengers at Queenstown, when they could be delivered by the new route much earlier in Scotland, Lancashire, and London.

It is on many accounts to be regretted that the necessary capital for the Manchester ship-canal has not been subscribed within the time-limit allowed by the act of parliament authorizing its construction. Another opportunity will be afforded next year. It is to be 35 miles long, and a contract for its construction had been taken for $28,750,000. The depth is to be 26 feet, and the bottom width 120 feet. There will therefore be ample room for the largest ocean steamers to pass each other, and such delays as on the Suez canal cannot take place. The 60 feet difference of level between the two ends will be surmounted by four sets of locks. It is estimated that the labor of 20,000 men will be required for four years to complete it.

Science will be represented in the new house of commons by Sir John Lubbock, Sir Henry Roscoe, Mr. Nevil Story Maskelyne, and Sir Lyon Playfair, who, now that he is released from the cares of office by the resignation of the Gladstone ministry, is intending to make his usual autumnal visit to the United States with Lady Playfair.

The following telegram from Paris on electrical transmission of force, appeared in the *Times* of July 26:—

"During the last ten years M. Marcel Deprez has been engaged in experiments connected with the transmission of force by means of electricity. The Rothschilds some time since provided him with an unlimited credit to prosecute his researches at Creil, under the inspection of a commission of thirty-eight men of science. On Friday the commission met to hear a report on the results at present obtained, drawn up at their request by M. Maurice Lévy. This report was unanimously approved. It appears from it that we can now, with only one generator and only one receptor, transport to a distance of about 35 miles a force capable of being used for industrial purposes of 52-horse power, with a yield of 45 per cent, without exceeding a current of 10 ampères. When the amount of force absorbed by the apparatus used to facilitate the recent experiment, but not required in the applications to industrial purposes, is added, the yield will be nearly 50 per cent.

"The commission certifies that the machines now work regularly and continuously. The maximum electro-motive force is 6,290 volts. Before the construction of the Marcel Deprez apparatus the maximum force did not exceed 2,000 volts. The report states that this high tension does not give rise to any danger, and that no accident has occurred during the past six months. The commission is of opinion that the transmitting wire may be left uncovered on poles, provided it be placed beyond the reach of the hand. It estimates at nearly £5,000 the probable cost of the transmission of 50-horse power round a circular line of about 70 miles. This price would, however, be much diminished if the machines were frequently constructed.

"The commission, in the name of science and industry, warmly congratulated M. Deprez on the admirable results which he had obtained, and expressed thanks to the Rothschilds for the generous aid extended to the undertaking."

In connection with this, attention may well be drawn to an admirable little book on this whole subject of the electrical transmission and distribution of power, just published, from the pen of Mr. Gisbert Kapp, in Whitaker's 'specialist' series. It contains a clear and concise summary of principles, and a detailed account of what has actually been accomplished.

The forest fires which have been desolating an important section of Algeria seem at last to have burnt out. During the Roman occupation, Tunis probably contained twenty millions of people; now the most favorable estimates do not place the population at more than one million and a half. At one time the regions at present so barren were wealthy with crops, as shown, for example, by the frequent ruins of Roman oil mills. In those days the country was covered with luxuriant forests. In Bruce's day, one hundred and twenty years ago, allusion is made to forests where now not a single tree is visible. Yet the soil is still there, only waiting to be stirred into life by rain. Every country off which timber has been cut or burnt without discretion is feeling more or less the same inconvenience. Let the United States and Canada take warning!

The institute of naval architects is now holding its summer session at Liverpool, under the presidency of the Earl of Ravensworth. Chief-engineer Parker, surveyor to Lloyds, read a paper on the progress and development of marine engineering, in which he illustrated by tables and diagrams the improvements effected during the past few years. Mr. William John, the manager of the Barrow ship-building company, then read a paper upon 'The construction of Atlantic passenger steamers,' in which he pointed out that none of the English transatlantic liners had yet been fitted with the latest modern improvements for economy of fuel or quick combustion, such as triple-expansion engines or forced draught, which some of the

heaviest subsidized French and German transatlantic steamers possessed. He argued strongly in favor of twin-screw propulsion, on which point the discussion that followed mainly turned. The views of the author were strongly supported by Mr. H. White, chief constructor to the navy, who stated that in 1878, on the basis of admiralty data, he had said every thing in favor of twin screws that Mr. John had stated in his paper. W.

London, July 31.

NOTES AND NEWS.

IT may interest our readers to see the following table of percentages on which some comments are offered in another part of the paper. These percentages represent the proportion of members from the region designated to the total membership registered (exclusive of Europeans) at the meetings of the American association for the advancement of science during the last ten years.

	Canada.	North-eastern states.				Other northern states.				Southern states.
						East of Mississippi.		West of Mississippi.		
	Montreal, 1882.	Buffalo, 1876.	Saratoga, 1879.	Boston, 1880.	Ph'delphia, 1884.	Cincinnati, 1881.	Ann Arbor, 1885.	St. Louis, 1878.	Min'apolis, 1883.	Nashville, 1877.
Canada.....	14	3	3	2	3	1	2	1	2	0
N.-east. states.	65	68	80	84	73	29	37	35	33	24
Other north'n states. East of Mis.riv.	14	19	8	7	12	54	49	19	47	13
Other north'n states. West of Mis.riv.	3	4	3	4	5	5	5	31	15	5
South'n states.	3	5	5	3	8	10	7	12	4	57
Total att'd'ce exl. Europeans	918	199	258	979	978	542	364	132	328	166

— At the Buffalo meeting of the American association it is proposed to devote especial attention to the study and discussion of the interesting phenomena of the Niagara Falls and the gorge below. On Friday, August 20, one or more preliminary papers of an expository and suggestive nature will be given, intended to prepare the way for a short field-study of the falls and the gorge, which will occupy Saturday. Monday forenoon will be devoted to the discussion of the gorge and the problems to which it gives rise. A new survey of the falls has been arranged for, so that a considerable addition to the data for the computation of the rate of recession will be at command, and it is expected that new observations in other important lines bearing upon the chronology of the gorge will be presented, and will throw fresh light upon the history of the formation and recession of the falls and upon the utility or untrustworthiness of the gorge as a geological measure of time.

— Among the few local scientific societies of the United States, the Wyoming (Penn.) historical and geological society is especially to be commended for its activity. The second volume of its Proceedings, just published, contains, among other historical papers, several of interest on the local geology of the Wyoming valley. It would seem that the scope of the society might very profitably be widened so as to include other fields of scientific research in natural history.

— The 'Third annual report of the Wisconsin experiment station' deals with a variety of subjects, chiefly the results of experiments on crops, feeding, the composition of food-stuffs, fertilizers, etc., by Professors Henry and Armsby, together with more strictly botanical papers by Professors Trelease and Seymour.

—The 'Report of the life-saving service for 1885' presents not a few facts of interest deserving attention. One can only rightly appreciate the great importance that this branch of the public service has attained by the examination of the results as given for the past year in this report. The entire number of stations in operation was 203, of which 157 are on the Atlantic coast, 38 on the lakes, and seven on the Pacific coast, with one on the Ohio River at Louisville, Ky. The entire expense for the support of these stations during the year was less than $800,000, — not one-fourth as much as the value of the actual property saved. According to the report, there were 256 disasters to documented vessels during the year within the field of station operations. There were on board these vessels 2,206 persons, of whom 2,196 were saved, and only 10 lost. The estimated value of the vessels was $3,519,550, and that of their cargoes, $1,084,905, making the total value of property involved $4,604,455. Of this amount, $3,352,760 was saved, and $1,251,695 lost. The number of disasters involving the total loss of the vessels was 56. Besides the foregoing, there were 115 disasters to smaller crafts, from which 231 persons were saved, with the loss of only one life. The total loss of life was the smallest ever reached by the service, except in the year 1880, when but nine persons were lost. During the fourteen years' existence of the present service the total value of property saved has amounted to over $35,000,000, and there have been over 25,000 persons saved, with only 457 lost out of all those endangered. These figures seem almost incredible, and speak